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Remarks

Favorable reconsideration is requested in view of the above amendments and following remarks. The specification has been amended to refer to the parent cases. Minor clarifying amendments have been made to claims 1 and 50. Claim 30 has been cancelled. No new matter has been entered. Claims 1-29, 31, 50-64, and 74 are pending in the application.

Rejection under 35 USC 112

Claims 1-31, 50-64, and 74 have been rejected under 35 USC 112, second paragraph, as being indefinite. This rejection has been respectfully traversed.

Claim 1 has been amended to correct a minor typographical error cited by the Examiner. Claim 1 now properly recites "Ta".

Claim 50 has been amended in the manner suggested to recite "carbon" in place of "C".

The rejection also has requested that in claim 53, --layer-- be inserted after "containing" in line 3. Applicants respectfully note that in the Amendment filed October 19, 2000, instructions were provided to amend line 3 of claim 53 to recite --layer-- after "containing".

In view of the above, withdrawal of the rejection is respectfully requested.

Prior Art Rejections

Claim 30 has been rejected under 35 USC 102(b) as being anticipated by Yoshioka et al. (US Patent 5,194,363). This rejection is respectfully traversed.

Claim 30 has been rejected under 35 USC 103(a) as being unpatentable over Yoshioka et al. '363 in view of Yoshioka et al. (JP 04-052188). This rejection is respectfully traversed.

Claim 30 has been cancelled, thereby rendering the above rejections moot.

Claims 1-31, 50-64, and 74 have been rejected under 35 USC 103(a) as being unpatentable over Yoshioka et al. '363 in view of Yoshioka et al. (JP 04-052188) and either Yoshitomi et al. (JP 63-171453), Kinou et al. (JP 03-248338), JP 01-276453 or Shindo et al. (JP 05-274726). This rejection is respectfully traversed.

Claim 30 has been cancelled, thereby rendering the rejection of this claim moot.

The rejection holds that Yoshitomi, Kinou, JP 01-276453, and Shindo are analogous art as they each concern laser recording media with metallic recording layers and as such, they are considered to be relevant to the issues of protecting the recording layer. Applicants respectfully disagree.

Applicants assert that Yoshitomi, Kinou, JP 01-276453, and Shindo are all directed to a magneto-recording medium. Magneto-recording mediums are of a different technical field than the reversible phase-change recording medium of the instant invention. Magneto-optical recording is based on the Kerr effect. The information-recording medium as recited by the instant invention utilizes the reversible phase change occurring in the recording layer.

Thus, as Yoshitomi, Kinou, JP 01-276453, and Shindo are directed to a different recording medium utilizing a different property to effect the recording of information, those skilled in the art of reversible-phase change recording media would find no motivation from Yoshitomi, Kinou, JP 01-276453, and Shindo to add Si, Al, or Zr to a layer in the recording medium of Yoshioka. Additionally, one of ordinary skill in the art of reversible phase-change recording media would find no motivation to add Si, Al, or Zr to a layer containing nitrogen.

Furthermore, Yoshitomi, Kinou, JP 01-276453, and Shindo do not suggest a barrier layer. The references only refer to the composition of a protective layer provided on the magneto-optical recording layer. In other words, Yoshitomi, Kinou, JP 01-276453, and Shindo describe a different layer provided in a different type of recording medium.

Additionally, for each of Yoshitomi, Kinou, JP 01-276453, and Shindo, the rejection holds that the substrate layer is an adjacent layer. The rejection appears to be equating the substrate layer of each of these references with the protective layer as required by claims 1 and 31. Applicants respectfully disagree with the rejection's holding.

One of skill in the art of reversible phase change recording mediums cannot identify a substrate that is the equivalent to the protective layer in claims 1 and 31. The substrate layer, as disclosed by Yoshitomi, is made of resin or glass, and cannot be expected to have the same function as a protective layer upon reading the instant specification and claims. The terms "protective layer" and "substrate" are clearly different.

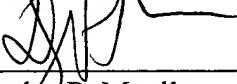
Finally, the cited references fail to recognize the advantages of including a barrier layer in optical information recording medium of the instant invention. The barrier layer or Ge-containing layer as recited by claims 1, 31, and 50, respectively, suppresses the degradation of the reversible phase change recording layer thus, improving its phase change properties. None of the references teach or suggest that "a barrier layer" or a "Ge-containing layer" as recited by the instant invention enhances the phase change properties of the optical recording medium and as such, fail to recognize the advantages of including a barrier layer or Ge-containing layer as required by the instant invention.

For the reasons discussed above, the invention as claimed by claims 1, 31, and 50 is patentable over Yoshioka '363 in view of Yoshioka JP 04-052188 and either of Yoshitomi, Kinou, JP 01-276453, or Shindo. As claims 2-29, 51-64, and 74 depend from claims 1 and 50, respectively, they are also patentable for at least those same reasons mentioned above. Favorable reconsideration is respectfully requested.

In view of the above, favorable reconsideration in the form of a Notice of Allowance is respectfully requested.

Respectfully Submitted,

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Dated: June 21, 2001





N 09/390,228

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: UNO ET AL. Examiner: M. ANGEBRANNNDT
Serial No.: 09/390,228 Group Art Unit: 1756
Filed: SEPTEMBER 3, 1999 Docket No.: 10873.274US1
Title: OPTICAL INFORMATION RECORDING MEDIUM, PRODUCING
METHOD THEREOF AND METHOD OF RECORDING/ERASING/
REPRODUCING INFORMATION

Version with Markings to Show Changes Made

In the Specification

Before line 1, please add the following statement:

--This application is a Continuation-in-Part of Application Serial No. 09/050,762 filed March 30, 1998, now abandoned, and a Continuation-in-Part of Application Serial No. 08/815,301 filed March 11, 1997.--

In the Claims

Please cancel claim 30 without prejudice or disclaimer. Please amend claims 1 and 50 as indicated herein.

1. (Amended) An optical information recording medium comprising:
 - a barrier layer;
 - a first protective layer; and
 - a recording layer generating a reversible phase-change which can be optically detected according to an irradiation of an energy beam; wherein said barrier layer is formed between said first protective layer and said recording layer and in contact with said first protective layer and said recording layer, and includes either one selected from the group consisting of GeN and GeNO and at least one element selected from the group consisting of Al, B, Ba, Bi, C, Ca, Ce, Cr, Dy, Eu, Ga, Hf, In, K, La, Mn, Nb, Ni, Pb, Pd, Si, Sn, [Ya]Ta, Ti, V, W, Yb, Zn, and Zr.

50. (Amended) An optical information recording medium comprising a phase-change recording layer having reversibly changeable optical characteristics and a Ge-containing layer comprising either one selected from the group consisting of GeXN and GeXON as a main component,

wherein X is at least one element selected from the group consisting of elements belonging to Groups IIIa, IVa, Va, VIa, VIIa, VIII, Ib and IIb, and [C] carbon.